

Extended and point-like X-ray emission in a proto-cluster at $z=3.8$

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4C41.17 : 10^{46} erg s $^{-1}$ radio galaxy at $z=3.8$, also highly luminous sub-mm source, with $L_{\text{FIR}} = 10^{13} L_{\text{Solar}}$

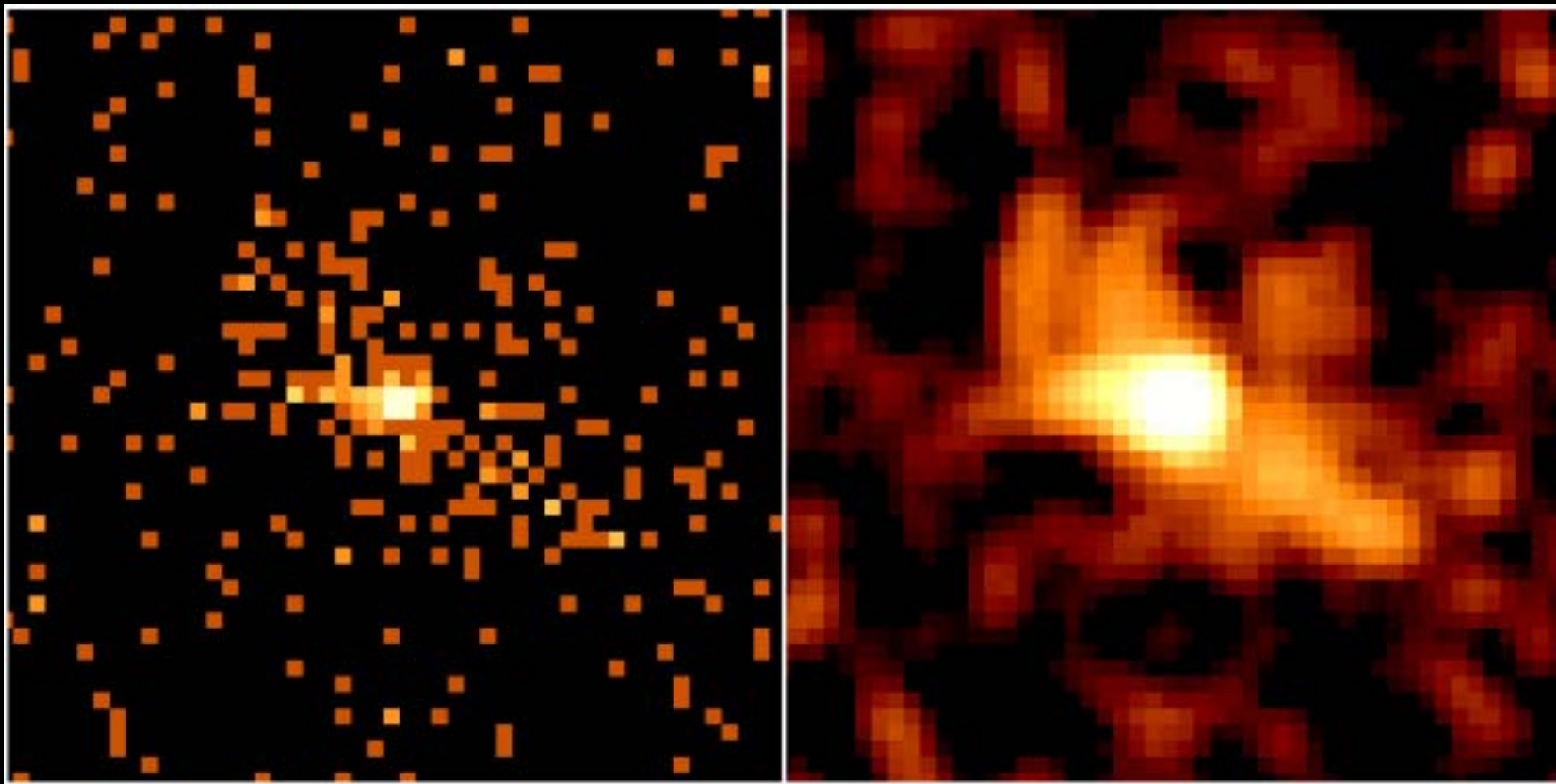
Multi-wavelength evidence indicates this is the construction site of a massive galaxy

Located in overdensity/clustering of sub-mm sources, Lyman-break galaxies, and Lyman-emission objects (with spectra).

Target of 150 ksec Chandra exposure

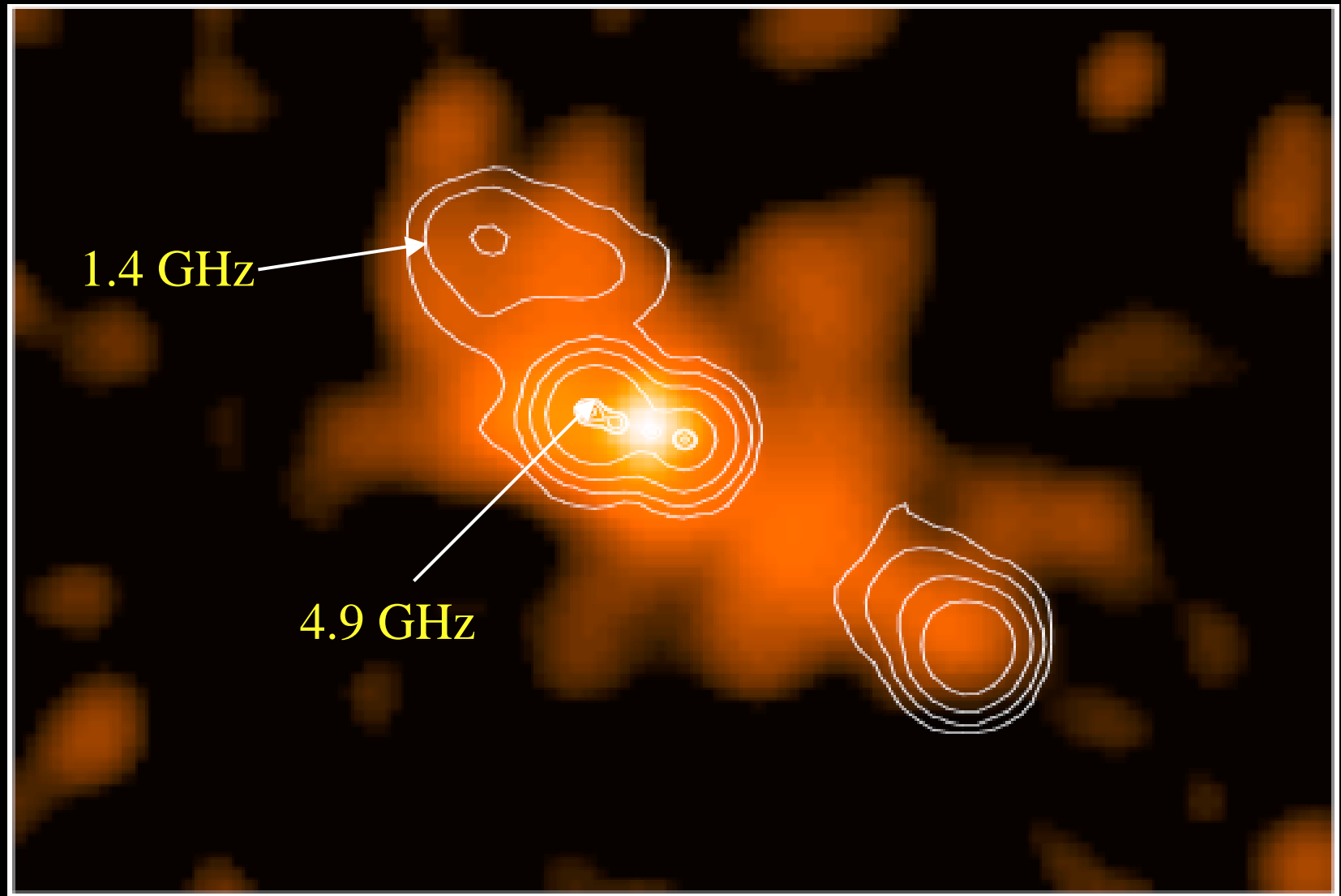
ACIS-S 0.3-8 keV, 135ksec

Gaussian smoothed



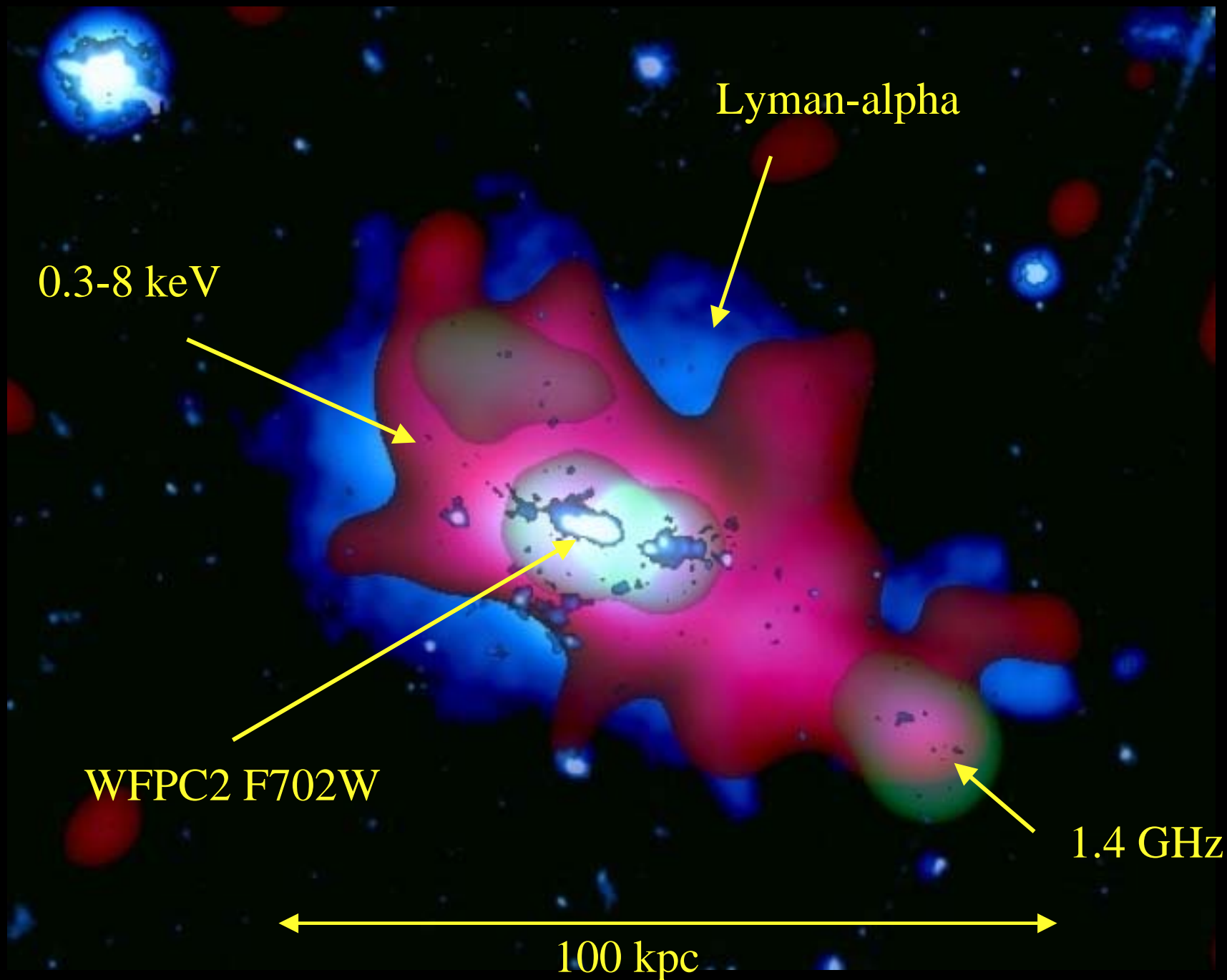
1.44-38.4 keV rest frame

General correlation with radio



Rest frame
Lyman-alpha

Van Breugel et al 2002
Reuland et al 2003

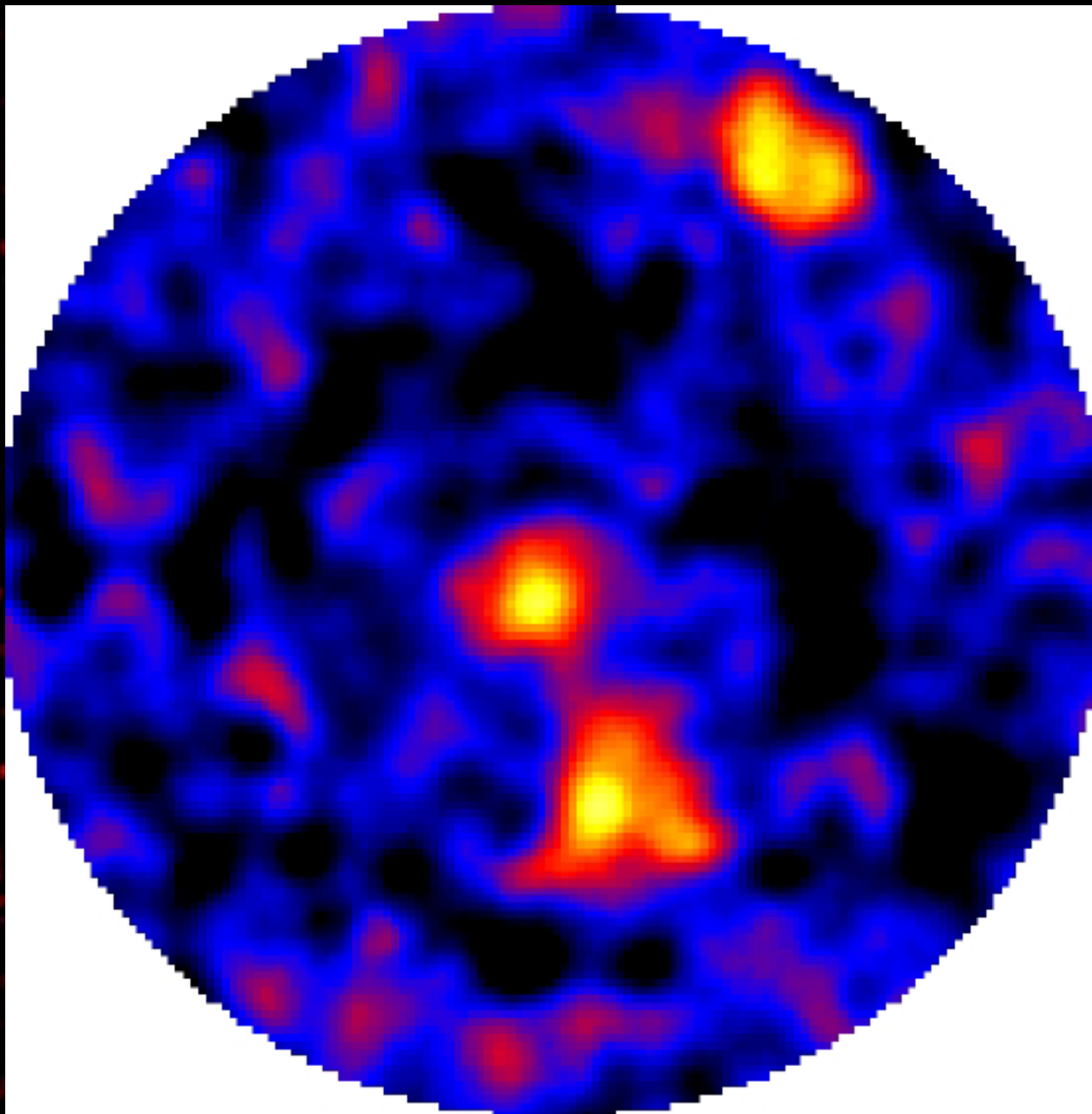



The immediate environment of 4C 41,17



0.3-8 keV,
Gaussian
smoothed

30''
(~200 kpc)



850 μm SCUBA map

